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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,807	01/16/2004	Boo Jorgen Lars Nilsson	DS1002	8259

7590

09/21/2005

ATTN: Travis Dodd
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Fallbrook, CA 92028

EXAMINER

VU, PHU

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No. 10/759,807	Applicant(s) NILSSON, BOO JORGEN LARS	
	Examiner Phu Vu	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 38-67 and 69-75 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 38-67 and 69-75 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 38-57 in the reply filed on 8/11/2005 is acknowledged. Claims 38-67 and 69-75 are now pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 38-41, 44-45, 49, 51-54, 70, and 72-73 rejected under 35 U.S.C. 102(b) as being anticipated by Arai et al US Publication No 2002/0179901.

Regarding claim 38, Arai teaches a method of forming a display comprising obtaining substrate ([0039]), forming pixel control circuits on the substrates ([0040] organic TFT) wherein forming the pixel control circuits includes depositing ([0061]) a semiconductor on the substrate from solution ([0017]. The limitation of a pixel control configured to regulate light emission from the pixel is inherent as the reference teaches procedures for forming light emission for red blue and green (see [0062]).

Regarding claim 39, Arai teaches an organic semiconductor (see title).

Regarding claim 57, claim 39 discloses all the limitations of claim 57 (see claim 39 rejection).

Regarding claims 40 and 72, Arai teaches a conjugated polymer (see [0017]).

Regarding claims 41 and 73, Arai teaches the organic semiconductor material being a thiophene (see [0017]) thus has a thiophene backbone.

Regarding claim 44, Arai teaches a solvent for dissolving the organic semiconductor (see [0021]).

Regarding claim 45, Arai teaches a spin coating deposition method ([0045]).

Regarding claim 49, Arai teaches patterning of the semiconductor ([0113]).

Regarding claims 51-53, Arai teaches deposition by ink-jet printing ([0061]).

Regarding claim 54, Arai teaches depositing the semiconductor over a portion of the electrodes (see fig. 2C elements 106 and 102).

Regarding claim 70, Arai teaches a liquid crystal display (see [0033]).

Claims 58-66 are rejected under 35 U.S.C. 102(b) as being anticipated by Cominskey US Patent No 6177921.

Regarding claim 58, Comiskey teaches a method of forming a display comprising: obtaining a substrate (fig. 15 element 306) for use in the display forming a plurality of pixel control circuits (electrodes) configured to regulate light from a pixel, wherein forming the pixel control circuits include forming one or more electrodes that include an organic conductor on the substrate (column 14 lines 30-40).

Regarding claim 59, Cominsky teaches the organic conductor being polyaniline (see column 14 line 35).

Regarding claim 60, Cominsky teaches depositing the organic conductor from solution (column 10 lines 50-55).

Regarding claim 61, Cominskey teaches deposition by spin coating (column 3 lines 5-18).

Regarding claim 62, Cominskey teaches patterning the organic conductor following deposition (column 15 line 31 and).

Regarding claim 63-64, Cominskey teaches patterning the organic conductor through photolithography (column 15 line 31).

Regarding claims 65-66, Cominskey teaches deposition by ink-jet printing (column 3 lines 5-18).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 43 and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai in view of Li et al US Patent No 6372154.

Regarding claims 43 and 75, Arai discloses all the limitations of claims 43 and 75, except the organic semiconductor being poly (3-hexyl-thiophene). Li discloses poly-(3-hexyl-thiophene) as a polymer able to be screen-printed (see column 1 lines 34-38). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to use poly (3-hexyl-thiophene) because it is a screen-printable polymer.

Claims 42 and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai in view of Wudl et al US Patent No 5189136.

Regarding claims 42 and 74, Arai teaches all the limitations of claims 42 and 74 except an MEH-PPV as the organic semiconductor. Wudl teaches MEH-PPV as a conducting polymer after doping (semi-conductive) soluble in common organic solvents (see column 1 lines 15-20). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to use MEH-PPV because it is soluble in common organic solvents.

Claims 46-48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arai in view of Imazeki et al US Patent No 5357357.

Regarding claims 46-48, Arai teaches all the limitations of claims 46-48 except depositing the semiconductor includes modifying one or more portions of the substrate such that the solution preferentially adheres to regions of the substrate by increasing the hydrophobic or hydrophilic nature of portions of the substrate. Imazeki teaches adhesiveness between the substrate and an organic material can be enhanced by applying a hydrophilic or hydrophobic treatment to the substrates (column 11 lines 35-38). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to apply a hydrophobic or hydrophilic treatment to improve adhesiveness between the substrate and organic material.

Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arai in view of Bao et al US Patent No 6891237.

Regarding claim 50, Arai discloses all the limitations of claim 50 except using photolithography to pattern the semiconductor. Bao discloses patterning of organic semiconductors through conventional photolithography (see column 4 lines 28-47).

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Conventionality has associative benefits such as normally lower operating costs, and well developed techniques and implementations. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to pattern the semiconductor through photolithography to gain associative benefits of conventionality.

Claim is 55 rejected under 35 U.S.C. 103(a) as being unpatentable over Arai in view of Lamotte et al US Publication No 2003/0170454.

Regarding claim 55, Arai discloses all the limitations of claim 55 except, the substrate includes forming one or more electrodes that include an organic conductor on the substrate. Lamotte discloses electrodes formed of organic electrodes that enables fabrication of electronic devices characterized by a higher flexibility and a lower weight (see [0003]). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to use an electrode with an organic conductor to enable fabrication of electronic devices characterized by higher flexibility and lower weight.

Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cominskey in view of Yamada et al US Publication No 2002/0027636 and further in view of Ohya US 20020127821.

Regarding claim 56, Arai discloses all the limitations of claim 56 except a substrate with melting point lower than 350 degrees Celsius. Yamada discloses use of a PET substrate that is flexible (see [0008] and [0094]). Ohya discloses PET has a melting point of 255 degrees (see [0111]). Therefore, at the time of the invention, it

would have been obvious to one of ordinary skill in the art to use a low-melting point substrate to gain flexibility.

Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arai in view of Yamada et al US Publication No 2002/0027636 and further in view of Ohya US 20020127821.

Regarding claim 67, Arai discloses all the limitations of claim 67 except a substrate with melting point lower than 350 degrees Celsius. Yamada discloses use of a PET substrate that is flexible (see [0008] and [0094]). Ohya discloses PET has a melting point of 255 degrees (see [0111]). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to use a low-melting point substrate to gain flexibility.

Claim 69 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arai in view of Fujita et al US Patent No 5042917.

Regarding claim 69, Arai discloses all the limitations of claim 69 except a two terminal pixel control circuit. Fujita discloses a two terminal switching device for an active matrix display that is easy to manufacture (see abstract). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use a two terminal device because of easy manufacturing.

Claim 71 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bird US Patent No 5483263 in view of Arai et al. 2002/0179901.

Regarding claim 71, Bird discloses an image sensor array with pixel control circuits (see fig 1 element 8). Bird fails to disclose a method of forming comprising

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forming pixel control circuits on the substrate, each pixel control circuit being configured to regulate light from a pixel and forming pixel control circuits through deposition of a substrate from solution. Arai teaches a method of forming a display comprising obtaining substrate ([0039]), forming pixel control circuits on the substrates ([0040] organic TFT) wherein forming the pixel control circuits includes depositing ([0061]) a semiconductor on the substrate from solution ([0017]. The limitation of a pixel control configured to regulate light emission from the pixel is inherent to Arai as the reference teaches procedures for forming light emission for red blue and green (see [0062]). Arai teaches this method to provide a semiconductor device with finer structure than known printing methods (see [0010]). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to use a method of forming a display according to Arai to form a semiconductor device of finer structure than those formed with known printing methods.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu Vu whose telephone number is (571)-272-1562. The examiner can normally be reached on 8AM-5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571)-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phu Vu
Examiner
AU 2871


ROBERT KIM
SUPERVISORY PATENT EXAMINER